

2013 Nantachie Lake Aquatic Vegetation Control Plan

LDWF, Inland Fisheries

1. Waterbody type - Impoundment
2. Age and condition of control structure – Dam No.1 was completed in 1964. The structure is fulfilling its intended purpose. The following maintenance items are noted:
Warning signs and buoys are to be placed across the approach channel.
There are trees growing on the embankment toe that are to be cut or removed.

Dam No. 2 was completed in 2005 and is fulfilling its intended purpose. The following maintenance items are noted:

The grass cover on the downstream slope near the northeastern bend of the embankment is sparse and is to be monitored for erosion. Corrective action is to be taken when necessary.

3. Type of control structure – Nantachie Lake Dam No.1 consists of an earthen embankment on each side of the 150' wide spillway and an attached 150' wide auxiliary spillway on the north end, having a total length of 1,150 feet. The dam is located on the southwest corner of Nantachie Lake across Nantachie Creek. There is a single 5'x 5' drawdown gate in the vertical face of the spillway wall. Since the construction of the Red River Waterway Project, the spillway drawdown is only able to lower the lake level about 1 foot due to the height of the Red River pool upstream of Lock and Dam NO. 3 in Colfax, LA. Dewatering of Nantachie Lake can only occur through operation of Nantachie Lake Dam NO.2 (see attachment # 1).

Height of Dam No. 1 is 37 feet. Structural height is 41 feet. Hydraulic height is 32 feet.

Maximum discharge is 19,600 cubic feet per second.

Maximum storage is 35,500 acre-feet.

Normal storage is 11,200 acre-feet.

Drainage area is 84 square miles.

Nantachie Lake Dam No.2 consists of an earthen embankment having a plan length of 2,190 feet along the south shore of Nantachie Lake. There is an outlet pipe that crosses the embankment near mid-length (see attachment # 2).

4. Spillway Crest Elevation- 95.0 Mean Sea Level (MSL)
5. Surface acres at pool stage – 1,580
6. Water level fluctuation – average annual fluctuation is approximately 2 feet. However, water level may rise 6' above pool stage
7. Average depth – 7 feet – Maximum depth 17'
8. Watershed ratio – 32.4 : 1
9. Drawdown potential of structure (Dam No.2) – maximum of 7 feet below pool stage. Due to the potential of flooding private property downstream, the lake can only be dewatered approximately 2 inches every 24 hours.
10. Waterbody Board or Lake Commission – The Grant Parish Police Jury is the Lake Authority. There is no existing lake board or commission.

Note - There is a self-organized group of concerned citizens: Lake Nantachie Property Owners Association. Contact information- 62 Martin Springs, Forest Hill, LA 71430

Dam No. 2 is located in the earthen dam underneath Hwy 1240 and is used to dewater Nantachie Lake. The structure was built by the US Army Corps of Engineers (USCOE). In a cooperative agreement with USCOE, the Grant Parish Police Jury committed to maintenance of downstream crossings (see attachment # 3). In a separate cooperative agreement with USCOE, LDWF accepted ownership of the structure and will provide for the perpetual operation, maintenance, repair and replacement of the structure. The complete cooperative agreement is located in attachment # 4.

11. Procedure for spillway opening – Dam No.1 is owned by the State of Louisiana, Department of Transportation and Development. The Secretary of the Louisiana Department of Wildlife and Fisheries approves spillway openings for lake management and sends a written request to the Secretary of the Louisiana Department of Transportation and Development (DOTD). DOTD personnel operate the structure and monitor the rate of the drawdown.

Dam No. 2 is used to dewater Nantachie Lake. It is owned by the State of Louisiana, Louisiana Department of Wildlife and Fisheries. LDWF is responsible for the operation and maintenance of the structure; for details see attachment # 4. The Secretary of the LDWF approves all drawdowns and LDWF personnel are responsible for operation of the structure. Prior to drawdowns public notice is given by several methods.

- Details of the scheduled drawdown are presented at a Grant Parish Police Jury public meeting.
- Notice is published in the local news paper - The Colfax Chronicle
- Written notice is sent to the Lake Nantachie Property Owners Association Secretary.

DRAWDOWN HISTORY					
Gate Opened	Gate Closed	Purpose	Results	Below Pool	Issues
1974	undocumented	vegetation control	undocumented	10 feet	
1979	undocumented	vegetation control	undocumented	10 feet	
09/08/1992	11/01/1992	shoreline maintenance	undocumented	6 feet	
10/10/2005	01/31/2006	vegetation control	Good	7 feet	benefits short-term
07/17/2006	11/14/2006	vegetation control	limited	7 feet	unsuccessful excessive rainfall
07/16/2007	01/31/2008	vegetation control	Good	7 feet	benefits short-term
7/24/2012	Refilled 01/14/2013	Hydrilla control	Good	4 feet	

11. What significant stakeholders use the waterbody?
Home and camp owners

Recreational fishermen

12. What are their needs and concerns?

Needs are primarily in association with boating and fishing.

13. What is the history of aquatic vegetation complaints?

Access to waters less than 4 feet deep has been a recent concern. Access to private boat docks and piers is difficult in water less than 4 feet due to submergent vegetation, primarily hydrilla. Records indicate chronic vegetation complaints beginning in the early 1970's and continuing until the present.

14. Have there been any controversial issues?

Red River Navigation Pool 3 prevents future use of the Nantachie Lake Dam #1 gate to dewater the lake. A control structure in Dam #2 was constructed to allow dewatering to approximately 7 feet below pool stage.

In the fall of 2010, the Grant Parish Police Jury (GPPJ) and the Lake Nantachie Property Owners Association (LNPOA) requested an opening of Dam No. 1 to allow Red River water to backflow into the Nantachie Lake. The action was requested to raise the level of the impoundment to alleviate low water issues. An opening of Dam No. 2 was also requested to provide irrigation water for farmers and ranchers downstream in Bayou Darrow. LDWF requested an opinion from DOTD on operation of Dam No.1 for back flow. In a recommendation against the action, DOTD explained that the structure was not designed for reverse flow and that there is no trash rack on the downstream side for protection. Obstruction of the gate opening is a concern. Operations to close an obstructed gate could cause extensive damage to the gate and structure. Secretary Robert Barham was advised by LDWF staff that the action carried long term risk for all Nantachie Lake users to attain short term gain for a small number of users. Secretary Barham agreed and did not forward a request for the gate opening to DOTD.

On November 7, 2011 a joint agreement was entered into between the Grant Parish Police Jury and the Louisiana Department of Wildlife and Fisheries. In the agreement, the Police Jury assumed liability and responsibility for all damages due to the operation of Dams No. 1 and 2. Nantachie Dam No.1 was opened to allow Red River water to back flow into the impoundment. Dam No. 2 was opened to provide water for drought relief to downstream farmers and ranchers in western Grant Parish. See attachment # 5 to review the complete agreement.

Aquatic Vegetation Status:

As of June 12, 2012, hydrilla remained the primary problem vegetation with approximately 900 acres of coverage in Nantachie Lake. Approximately 150 acres of giant salvinia were observed scattered throughout the impoundment. No major mats of giant salvinia were present. A fringe of alligator weed and scattered water hyacinth were present along the shoreline. Coverage of each species was less than 100 acres.

Hydrilla is predicted to be less severe in 2013 than in 2012 due to the draw down that

occurred in 2012/2013. Giant salvinia is also predicted to be a major problem in 2013 unless set back by severe winter weather. Coverage of up to 300 acres is possible.

Limitations:

1. Factors that may limit the effectiveness of chemical, mechanical, or biological control methods for the aquatic plant problems found in the waterbody.
 - a) 7 feet is the maximum drawdown capability
 - b) Due to downstream flooding, Nantachie Lake can only be lowered 2 inches/day
 - c) Benefits of triploid grass carp as a control may be diminished due to hydrologic connection with the Red River.
2. Regulatory or other factors that may limit the ability of LDWF to control aquatic plant problems in the water body.
 - a) 2, 4- D Waiver area

Past Control Measures:

Year	Acres	Vegetation
2009	9.0	Alligator Weed
	1.0	Common Salvinia
	25.0	Giant Salvinia
	27.0	Water Hyacinth
2010	151.0	Alligator Weed
	2.0	Common Salvinia
	20.0	Giant Salvinia
	15.0	Water Hyacinth
2011	24.0	Alligator Weed
	36.0	Giant Salvinia
2012	72	Alligator Weed
	21	American lotus
	18	Primrose
	702	Giant Salvinia
	240	Water Hyacinth

Herbicides have been applied at the following rates:

Glyphosate (Aquamaster, Aquastar, etc.): Used at a rate of 0.75 gallons per acre to treat alligator weed, water hyacinth, giant and common salvinia during the active growing period.

Diquat (Reward, Knockout): Used at a rate of 0.75 gallons per acre to treat alligator weed, water hyacinth, and giant and common salvinia during the slower growing period or winter months.

Surfactant is added at a rate of 1:4 (surfactant: herbicide) for all herbicides.

Nantachie Lake was drawn down 3 consecutive years beginning in 2005 and ending in 2007 for submergent vegetation control (primarily hydrilla). The beginning date for drawdowns had to be started earlier than the typical September start. To avoid downstream flooding, Nantachie Lake can only be dewatered 2 inches per day. Since the 2007 drawdown, control efforts have consisted of herbicide applications to emergent vegetation. Applications are conducted for several days each month. The treatments have primarily been focused on giant salvinia.

Nantachie Lake was drawn down 4 feet from July thru December of 2012. The drawdown was implemented as part of a long-term plan to control hydrilla. The drawdown was designed to provide a short-term reduction of the hydrilla biomass prior to stocking the lake with triploid grass carp. The TGC stocking is scheduled for the spring of 2013.

Recommendations

Triploid grass carp are to be stocked in the spring of 2013 according to the guidelines listed in the 2012 Nantachie Lake Vegetation Control Plan.

Annual surveys are scheduled to document aquatic vegetation coverage (type maps). These surveys will be conducted in July or August. The surveys will provide the department with a method to monitor the results of the TGC stocking.

LDWF spray crews will continue spraying emergent vegetation several days per month with glyphosate or diquat and an approved surfactant. These herbicides will be applied at the rate of 0.75 gallons per acre with the surfactant applied at 0.25 gallons per acre. A diquat/glyphosate mix will be applied to giant salvinia at a rate of 0.75 gal/acre glyphosate, 0.25 gal/acre diquat, 0.25 gal/acre Aqua King Plus surfactant, and 8 oz/acre Thoroughbred surfactant from April 1 to October 31. Outside of that time frame, 0.75 gal/acre diquat and a non-ionic surfactant will be used.

Aquatic technicians will report significant changes in the status of aquatic vegetation following days of spraying activity.

Upon final approval through LDWF administration, these recommendations will be submitted to the Grant Parish Police Jury. Related presentation and discussion will also be available to other interested groups on request.

Attachment # 1

NANTACHIE - OLD STRUCTURE: Referred to as STRUCTURE NO.1

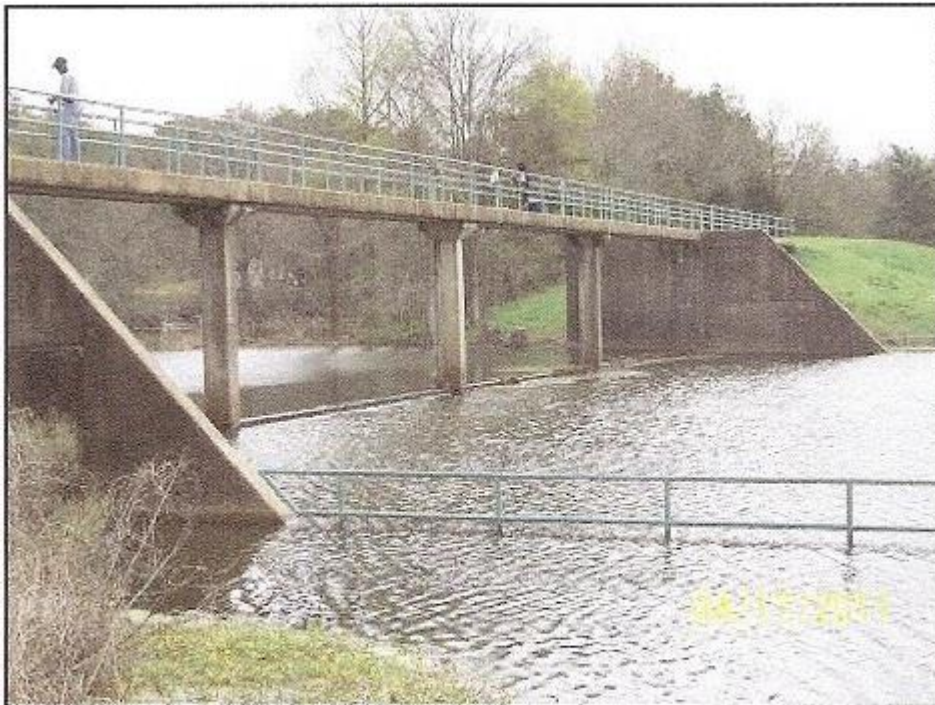


Photo No. 7 View of spillway, looking upstream and easterly, note small head differential between upstream and downstream

Attachment # 2

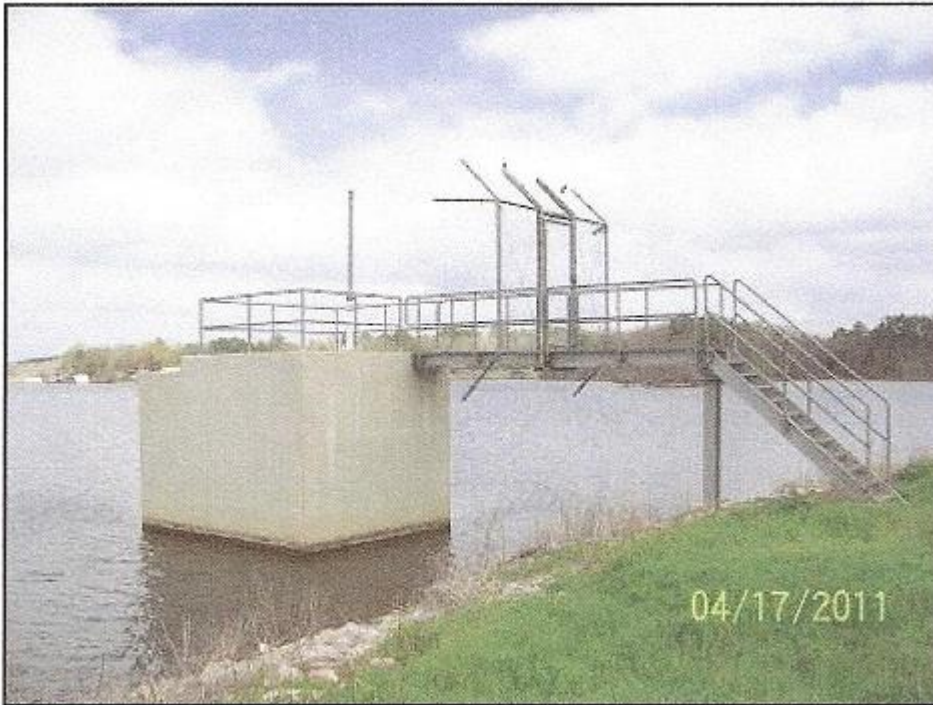


Photo No. 5 View of drawdown intake tower, looking northerly

NEW STRUCTURE ABOVE AND BELOW HWY 1240: referred to as NO.2



Photo No. 9 View of drawdown discharge, looking northwesterly

Attachment 3 (Cooperative Agreement between the Red River Waterway Commission and the Grant
Parish Police Jury)

COOPERATIVE AGREEMENT
BETWEEN
THE RED RIVER WATERWAY COMMISSION
AND
THE GRANT PARISH POLICE JURY

THIS AGREEMENT (the "Agreement") is entered into as of February 28, 2003 between the RED RIVER WATERWAY DISTRICT, through its statutorily empowered governing body, the RED RIVER WATERWAY COMMISSION (the "Waterway Commission") represented by Kenneth P. Guidry, duly authorized by vote of the Waterway Commission taken on the 19th day of February, 2003; and the Grant Parish Police Jury ("Police Jury"), represented by Tom Hamilton, duly authorized by vote of the Police Jury taken on the 13th day of March, 2003.

WITNESSETH THAT:

WHEREAS, the Waterway Commission and the Police Jury agree that the drawdown capability of Nantachie Lake, located in Grant Parish, Louisiana, must be improved in order to facilitate lake management, including aquatic weed control and fishery management;

WHEREAS, Waterway Commission and the Police Jury agree that the most cost efficient and effective manner to improve the drawdown capability of Nantachie Lake is generally to (i) construct a gated drainage structure through the existing Shell Point Levee ("Levee") and repair a slide on the Levee ("New Structure") and (iii) improve existing crossings at seven sites down stream of the New Structure on Bayou Grappe and Sugarhouse Bayou ("Improved Crossings"). Hereinafter the construction of the New Structure and the Improved Crossings are collectively referred to as the "Nantachie Drawdown Project";

WHEREAS, the New Structure shall consist of a single seventy-two inch diameter concrete pressure pipe with an inlet control structure and an outlet channel protection;

WHEREAS, the Improved Crossings will be constructed at the location of six currently existing agricultural field road crossings and one currently existing parish road crossing;

WHEREAS, the six agricultural field road crossings will be improved by replacing the existing crossing with two to five (as determined by the Army Corps of Engineers) seventy two inch corrugated metal pipe culverts with associated riprap, erosion protection, and granular surfacing;

WHEREAS, the one parish road crossing will be improved by replacing the existing crossing with two to five (as determined by the Army Corps of Engineers) seventy two inch corrugated metal pipe culverts with associated riprap, erosion protection, and paved surfacing ("Parish Crossing Improvements");

WHEREAS the Army Corps of Engineers. ("Corps") has agreed to design and construct the Nantachie Drawdown Project if the Waterway Commission enters into Supplemental Assurances Between the Department of the Army and the Red River Waterway Commission ("Supplemental Assurances") which requires the Waterway Commission to (i) provide without cost to the United States all lands, easements and rights-of-way required for the construction and maintenance of the Nantachie Drawdown Project; and (ii) provide for the operation and maintenance of the Nantachie Drawdown Project according to the water control plan and maintenance manual provided for the New Structure.

WHEREAS, the Waterway Commission is agreeable to entering into the Supplemental Assurances with the Corps;

WHEREAS, the Waterway Commission and the Police Jury understand that the Waterway Commission cannot fulfill all obligations required by the Supplemental Assurances without assistance from the Police Jury; and

WHEREAS, in order to insure the fulfillment of all obligations set forth in the Supplemental Assurances, the Police Jury agrees to fulfill the certain obligations and commitments required by the Supplemental Assurances, as set forth herein.

NOW THEREFORE, Waterway Commission and the Police Jury agree as follows:

1.

Cooperative Development

In consideration of the Waterway District entering into the Supplemental Assurances and the Corps constructing the Nantachie Drawdown Project, the Police Jury agrees that upon substantial completion of construction of the Parish Crossing Improvements, the Police Jury shall (i) accept ownership of the Parish Crossing Improvements and (ii) provide the perpetual operation, maintenance, repair and replacement of the Parish Crossing Improvements. The Parish Crossing Improvements shall be operated and maintained according to the water control plan and maintenance manual provided by the Corps. Operation of the Parish Crossing Improvements shall include, but not be limited to, keeping the corrugated metal pipe culverts free of debris during Nantachie Lake drawdown periods.

The Police Jury further agrees to keep all corrugated metal pipe culverts at the Improved Crossings free of debris during Nantachie Lake drawdown periods so as to ensure unencumbered water flowage through the culverts.

The Police Jury also agrees to provide the Corps and/or the Waterway District with all necessary easements, rights-of-way, permits, and authority necessary to construct the Nantachie Drawdown Project, including the New Structure and/or any Improved Crossings.

Assignability

This Agreement may not be assigned nor transferred.

3.

Indemnification

The Police Jury will indemnify, defend and save harmless Waterway Commission (or its commissioners, agents, servants or employees) from and against all claims, demands, suits, judgments or awards of any money accruing in favor of any party against the Waterway Commission for loss of life or injury or damage to persons or property growing out of or resulting from, or by reason of Police Jury operating, maintaining, repairing or replacing the Parish Crossing Improvements.

4.

Severability

If any provision or item of this Agreement or the application thereof is held invalid, such invalidity shall not affect other provisions, items or applications of this Agreement which can be given effect without the invalid provisions, items or applications and to this end the provisions of this Agreement are hereby declared severable.

WITNESSES:

RED RIVER WATERWAY DISTRICT, through its
statutorily empowered governing body, the RED
RIVER WATERWAY COMMISSION

By: Kenneth P. Guidry
Kenneth P. Guidry, Executive Director

[Signature]
Richard Brown

[Signature]
NOTARY PUBLIC

WITNESSES:

GRANT PARISH POLICE JURY

[Signature]
Delia D. Duhon

By: [Signature]
President

[Signature]
Clara J. Neulle

[Signature]
NOTARY PUBLIC

Attachment 4 (Cooperative Agreement between the Red River Waterway Commission and the
Louisiana Department of Wildlife and Fisheries)

COOPERATIVE AGREEMENT
BETWEEN
THE RED RIVER WATERWAY COMMISSION
AND

THE LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES

THIS AGREEMENT (the "Agreement") is entered into as of MARCH 31, 2003 between the RED RIVER WATERWAY DISTRICT, through its statutorily empowered governing body, the RED RIVER WATERWAY COMMISSION (the "Waterway Commission") represented by Kenneth P. Guidry, duly authorized by vote of the Waterway Commission taken on the 19th day of FEBRUARY, 2003; and the LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES ("Department"), represented by James H. Jenkins, Secretary.

WITNESSETH THAT:

WHEREAS, the Waterway Commission and the Department agree that the drawdown capability of Nantachie Lake, located in Grant Parish, Louisiana, must be improved in order to facilitate lake management, including aquatic weed control and fishery management;

WHEREAS, Waterway Commission and the Department agree that the most cost efficient and effective manner to improve the drawdown capability of Nantachie Lake is generally to (i) construct a gated drainage structure through the existing Shell Point Levee ("Levee") and repair a slide on the Levee ("New Structure") and (ii) improve existing crossings at seven sites down stream of the New Structure on Bayou Grappe and Sugarhouse Bayou ("Improved Crossings"). Hereinafter the construction of the New Structure and the Improved Crossings are collectively referred to as the "Nantachie Drawdown Project"; and more specifically include the following:

- (1) the New Structure shall consist of a single seventy-two inch diameter concrete pressure pipe with an inlet control structure and an outlet channel protection;
- (2) the Improved Crossings will be constructed at the location of six currently existing agricultural field road crossings and one currently existing parish road crossing;
- (3) the six agricultural field road crossings will be improved by replacing the existing crossing with two to five (as determined by the Army Corps of Engineers) seventy two inch corrugated metal pipe culverts with associated riprap, erosion protection, and granular surfacing;
- (4) the one parish road crossing will be improved by replacing the existing crossing with two to five (as determined by the Army Corps of Engineers) seventy two inch corrugated metal pipe culverts with associated riprap, erosion protection, and paved surfacing;

WHEREAS the Army Corps of Engineers, ("Corps") has agreed to design and construct the Nantachie Drawdown Project if the Waterway Commission enters into Supplemental Assurances Between the Corps and the Waterway Commission ("Supplemental Assurances") which requires the Waterway Commission to (i) provide without cost to the United States all lands, easements and rights-of-way required for the construction and maintenance of the Nantachie Drawdown Project; and (ii) provide for the operation and maintenance of the Nantachie Drawdown Project according to the water control plan and maintenance manual provided for the New Structure;

WHEREAS, the Waterway Commission is agreeable to entering into the Supplemental Assurances with the Corps;

WHEREAS, the Waterway Commission and the Department understand that the Waterway Commission cannot fulfill all obligations required by the Supplemental Assurances without assistance from the Department; and

WHEREAS, in order to insure the fulfillment of all obligations set forth in the Supplemental Assurances, the Department agrees to fulfill the certain obligations and commitments required by the Supplemental Assurances, as set forth herein.

NOW THEREFORE, Waterway Commission and the Department agree as follows:

1.
Cooperative Development

In consideration of the Waterway District entering into the Supplemental Assurances and the Corps constructing the Nantachie Drawdown Project, the Department agrees that upon substantial completion of construction of the New Structure, the Department shall (i) accept ownership of the New Structure and (ii) provide, to the extent allowed by law, for the perpetual operation, maintenance, repair and replacement of the New Structure. The New Structure shall be operated and maintained according to the water control plan and maintenance manual provided by the Corps. The New Structure shall be utilized by the Department solely for lake management, including without limitation aquatic weed control and fishery management. The parties acknowledge and agree that the New Structure was not designed for flood control, and therefore the Department agrees not to operate the New Structure for flood control. Operation of the New Structure shall include, but not be limited to, determining when the New Structure shall be utilized to draw down the water level of Nantachie Lake and determining the extent and rate of the drawdown.

The Department also agrees to assist in obtaining appropriate permits and cooperation from the Nineteenth Louisiana Levee District ("Levee District") by making a request to the Levee District for (i) permits necessary for the Corps to Construct the Nantachie Drawdown Project; and (ii) permits necessary for the Department to perpetually operate, maintain, repair and replace the New Structure.

Assignability

This Agreement may not be assigned nor transferred.

3.

Indemnification

The Department will indemnify, defend and save harmless Waterway Commission (or its commissioners, agents, servants or employees) from and against all claims, demands, suits, judgments or awards of any money accruing in favor of any party against the Waterway Commission for loss of life or injury or damage to persons or property growing out of or resulting from, or by reason of Department operating, maintaining, repairing or replacing the New Structure.

4.

Severability

If any provision or item of this Agreement or the application thereof is held invalid, such invalidity shall not affect other provisions, items or applications of this Agreement which can be given effect without the invalid provisions, items or applications and to this end the provisions of this Agreement are hereby declared severable.

WITNESSES:

Billie Delphin
Clare D Weaver

RED RIVER WATERWAY DISTRICT, through its
statutorily empowered governing body, the RED
RIVER WATERWAY COMMISSION

By: Kenneth P. Guidry
Kenneth P. Guidry, Executive Director

Cathy D. Pinner
NOTARY PUBLIC

WITNESSES:
Rena A. Hardy
Susan C. Hawkins

LOUISIANA DEPARTMENT OF WILDLIFE AND
FISHERIES

By: James H. Jenkins
James H. Jenkins, Secretary

[Signature]
NOTARY PUBLIC

Attachment 5

JOINT AGREEMENT TO OPEN THE NANTACHIE LAKE LOCKS

This agreement to open the Nantachie Lock and Dam Structures is made and entered into by and between:

GRANT PARISH POLICE JURY, 200 Main Street, Grant Parish Courthouse Building, Colfax, Louisiana 71417, represented herein through its authorized President, Arnold Murrell; and

LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES, 2000 Quail Drive, Baton Rouge, Louisiana 70808, represented herein through its authorized Secretary, Mr. Robert Barham.

RECITALS

WHEREAS, crops and cattle are dying as a result of the drought.

WHEREAS, there is a dire emergency need for the infusion of water from the Red River into Nantachie Lake to help provide water for immediate emergency relief from the drought.

WHEREAS, The Louisiana Department of Wildlife and Fisheries has hereby agreed to allow the locks at Nantachie Lake to be opened at both the concrete dam structure and earthen dam structure to allow the inflow of the necessary water from the Red River into Nantachie Lake.

NOW, THEREFORE, in accordance with Resolution 77-00-11 of the Grant Parish Police Jury which was passed, approved, and adopted on November 1, 2011 the Grant Parish Police Jury through its President Arnold Murrell has hereby agreed to hold harmless and indemnify the Louisiana Department of Wildlife and Fisheries and other agencies of the State of Louisiana from any and all liability for damage that may occur as


a result of the opening and closing of said structures.

IN WITNESS WHEREOF, the parties hereto have executed and entered this
"Joint Agreement to Open the Nantachie Lake Locks" on this 7th day of November
2011.

GRANT PARISH POLICE JURY

By: 
ARNOLD MURRELL
PRESIDENT
GRANT PARISH POLICE JURY

LOUISIANA DEPARTMENT OF
WILDLIFE AND FISHERIES

By: 
ROBERT BARHAM
SECRETARY
STATE OF LOUISIANA
DEPARTMENT OF WILDLIFE
AND FISHERIES

Typemap

NANTACHIE LAKE

AQUATIC PLANT SURVEY

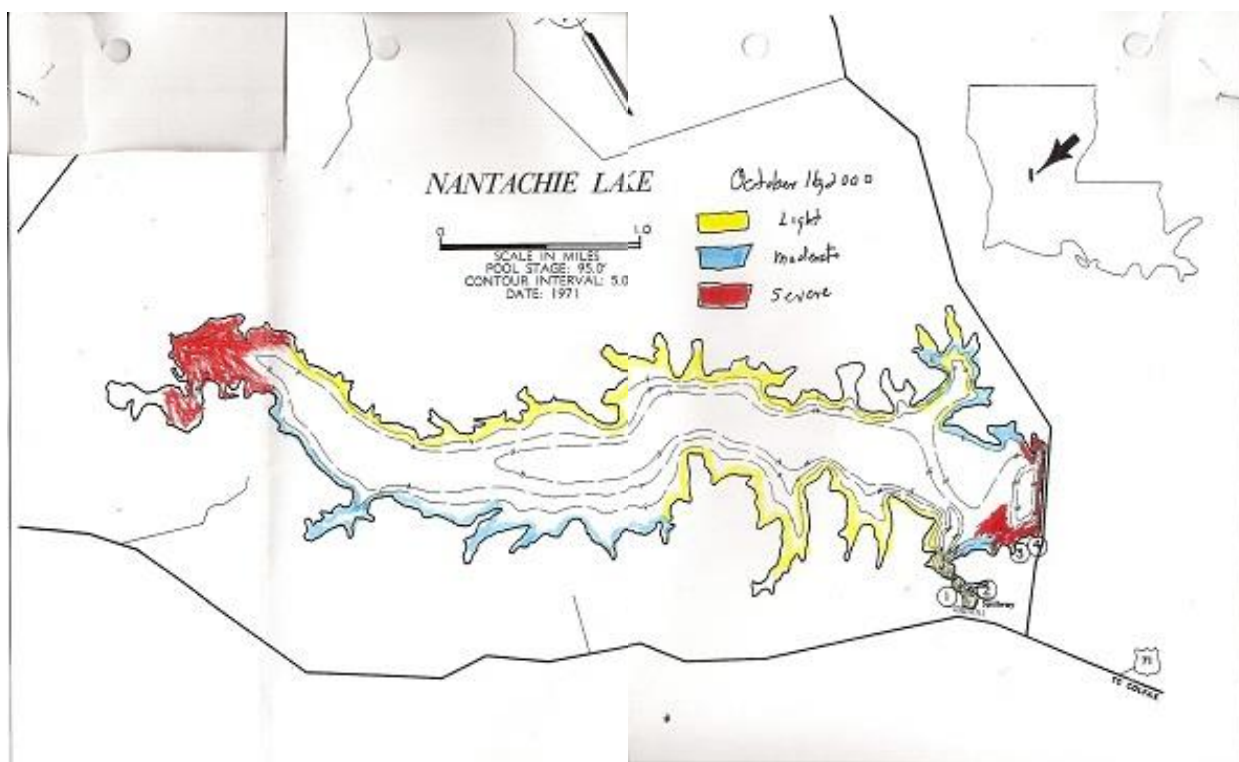
October 16, 2000

Nantachie Lake was surveyed October 16, 2000. The purpose of the survey was to gather data for constructing a vegetative typemap and writing a condition report. *Hydrilla verticillata*, *Potamogeton* sp., and *Eichornia crassipes* were the most abundant species. *Ceratophyllum demersum* and *Utricularia* species were less common. *Hydrilla* was found only in the vicinity of the public boat ramp, but its coverage had increased since the 1999 survey. It had invaded shallow water areas «5 feet in depth) up to 12 mile from the public launch. *Ceratophyllum demersum* (coontail) was found mixed with *hydrilla* where nutrient rich waters from household runoff entered the lake.

Shallow water areas «2 feet deep) in the upper extremities of Nantachie lake were infested: with *Potamogeton* sp., *Utricularia* sp., *Eichornia crassipes*, *Chara* sp., and filamentous algae. These plants covered less than 5 percent of the entire lake. Water hyacinths were beginning to cause a few problems with navigation in this part of the lake.

Shoreline plants observed were *Cephalanthus occidentalis*, *Polygonum* sp., *Sagittaria* sp., *Alternanthera philoxeroides* and *Zizaniopsis* sp.. These plants caused no problems and were contributing to shoreline stabilization.

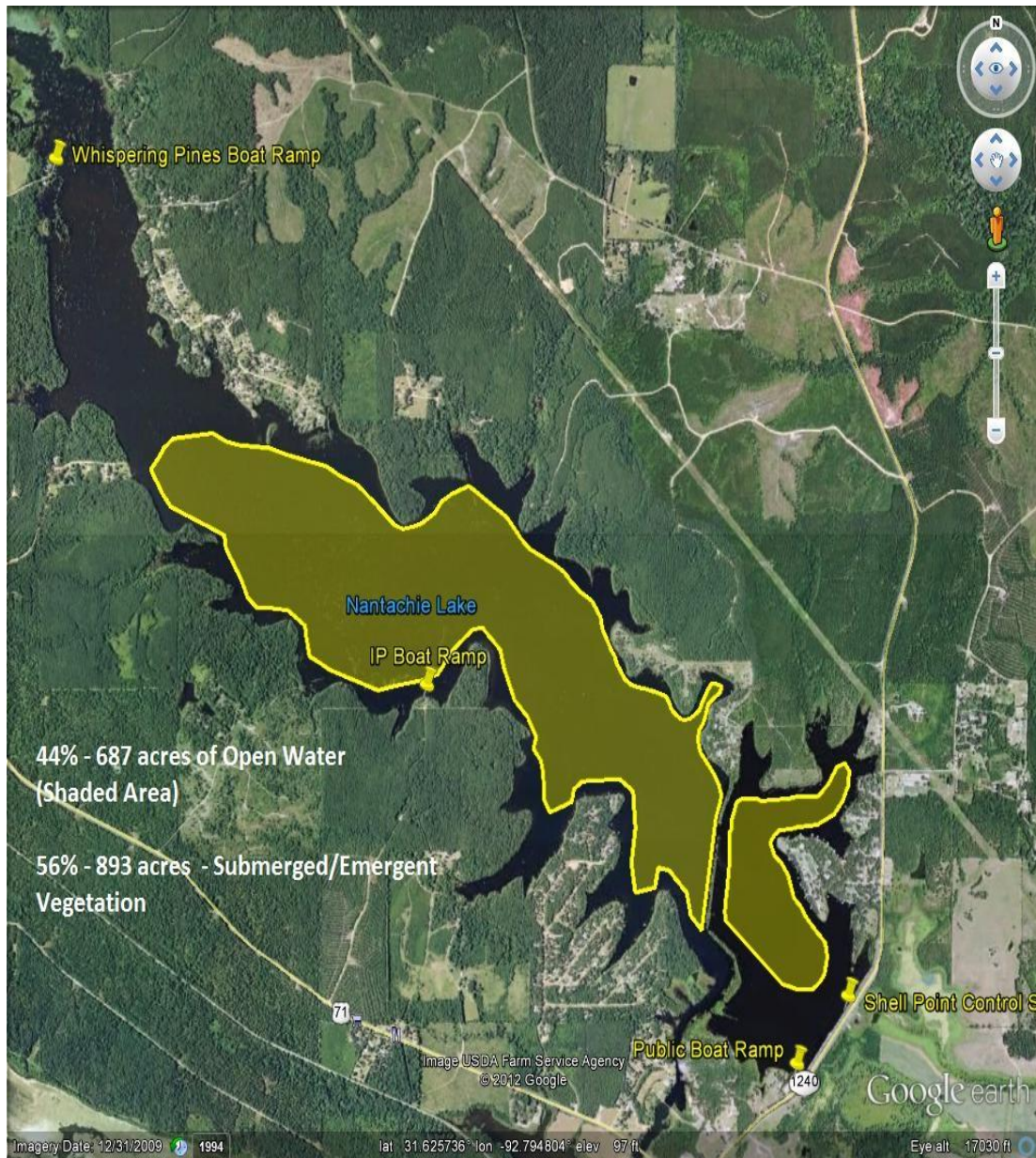
In summary, Nantachie Lake was in very good condition. Aquatic plant problems were limited to the extreme northwest end of the lake and in waters near the public launch. Approximately 90 percent of the lake was free of aquatic plant growth and open to fishing opportunity.



Nantachie Lake Type Map October 2000

Type map 2012

Conducted on June 12, 2012



Hydrilla was found to cover approximately 56 % of the lake (900 acres)
Giant salvinia was widely scattered in small clumps throughout the lake (150 acres)
Alligator weed and water hyacinth was found throughout the lake primarily on the northern end
however coverage was less than 150 acres.